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Expand Details++**Controlled surface texturing of thermoplastics resulting in area increase - by laser micro-engineered surface pits in forming surface, with temperature gradient which enables e.g. fibrils or lamellae to be pulled**

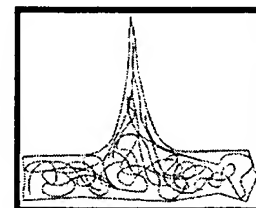
Assignee: **RANSMAYER A & RODRIAN A** Non-standard company  
 Inventor: **BARUSCHKE M; BONGERS A; GERICKE R; KAEUFER H; WEGMEYER M;**

Accession / Update: **1999-097034 / 199909**

IPC Code: **B29C 45/40 ; A61C 8/00 ; A61F 2/28 ; B01J 31/06 ; B01J 32/00 ; B29C 59/16 ; B29C 61/00 ; F24J 2/46 ; H01L 31/0392 ; H01L 31/042 ;**

Derwent Classes: **A32; D21; D22; J04; M11; S05; U12; P32; Q74;**

Manual Codes: **A09-D01**(Moulding processes) , **A10-E10**(Electric discharge, ultrasonic treatment and irradiation) , **A11-B12**(Injection moulding) , **A11-B12C**(Equipment) , **A11-C04E**(Corona discharge, plasma treatment; irradiation) , **D08-A**(General and others) , **J04-E03**(Catalyst supports) , **M11-A**(General) , **S05-X**(Miscellaneous) , **U12-A02A**(Radiation sensitive devices for energy conversion)



Derwent Abstract

**DERWENT  
RECORD**

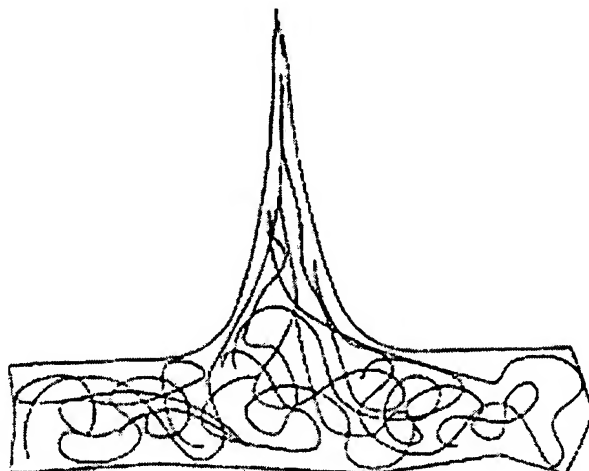
(DE19731315A) Surface structuring is performed on thermoplastic products during various forming processes (e.g. pressure injection moulding). Temperature gradients are adjusted depending on particular thermoplastic characteristics. The temperature gradient between the surface to be structured and the opposite lower- or inner surface is adjusted during forming. Surfaces which are not to be structured are cooled below the setting point of the plastics. Those surfaces to be structured remain in the plasticised state. As the pretreated forming tool is removed, the surface of the product becomes fibrillated. Also claimed is the thermoplastic product made as described. It may be formed and textured for use e.g. in filtration.

**Use** - To make a textured surface during a plastics forming process, used in e.g. filtration.

**Advantage** - Structuring can be accomplished at the same time as forming, and may be localised. It is internal or external. Temperature gradient, absolute temperature, the plastics selected and the forming tool pretreatment can control the result (others cited in text), (roughening, impressing, coating etc.) with the increase achievable by the new method. The surface area increase achievable compared with prior art is 2000% as oppose to 250%. Structuring is reliably reproducible and homogeneous. Adhesion over the gas-filled micro-engineered holes of the mould is slight, but adequate for fibrillation. Molecular orientation in the fibrils enhances their tensile strength. A variety of fibrillated forms is made possible by controlling the laser microengineering.

Abstract info: [DE19731315A](#); Dwg.2/2

Images:



Family:

| Patent                                                          | Pub. Date     | DW Update | Pages | Language | IPC Code      |
|-----------------------------------------------------------------|---------------|-----------|-------|----------|---------------|
| <a href="#">DE19731315A1</a> *                                  | Jan. 21, 1999 | 199909    | 5     | German   | B29C<br>45/40 |
| Local apps.: DE1997001031315 ApplDate:1997-07-16 (97DE-1031315) |               |           |       |          |               |

Priority Number:

| Application Number | Application Date | Original Title |
|--------------------|------------------|----------------|
| DE1997001031315    | July 16, 1997    |                |

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Related Accessions:

| Accession Number | Type | Derwent Update | Derwent Title |
|------------------|------|----------------|---------------|
| C1999-028846     | C    |                |               |
| N1999-070544     | N    |                |               |
| 2 items found    |      |                |               |

Title Terms:

CONTROL SURFACE TEXTURE THERMOPLASTICS RESULT AREA  
INCREASE LASER MICRO ENGINEERING SURFACE PIT FORMING  
SURFACE TEMPERATURE GRADIENT ENABLE FIBRIL LAMELLA PULL

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①⑨ **BUNDESREPUBLIK  
DEUTSCHLAND**



**DEUTSCHES  
PATENT- UND  
MARKENAMT**

⑫ **Off nl gungsschrift**  
⑩ **DE 197 31 315 A 1**

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㉕ Offenlegungstag: 21. 1. 99

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**DE 197 31 315 A 1**

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**Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen**

㉛ Verfahren zur Herstellung speziell strukturierter Oberflächen thermoplastischer Kunststoff-Formkörper und ihre Anwendung

㉜ Die Erfindung betrifft ein Verfahren zur Herstellung speziell strukturierter Oberflächen, insbesondere die Fibrillierung der Oberfläche thermoplastischer Kunststoff-Formkörper, sowie verschiedene Anwendungsvarianten. Die Fibrillierung wird durch die entsprechende Strukturierung der formenden Werkzeugflächen so erreicht, daß die zu fibrillierende Fläche des Formkörpers bei der Herstellung im Bereich der Plastifizierungstemperatur verbleibt, während die nichtstrukturierte Gegenseite mindestens auf die Erstarrungstemperatur gekühlt wird. Beim Entformen der strukturierten Fläche erfolgt eine Reckung der entstandenen Fibrillen.

**DE 197 31 315 A 1**